

Exhibit 2

(REDACTED VERSION OF
DOCUMENT TO BE SEALED)

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Page 1

1 UNITED STATES DISTRICT COURT
2 EASTERN DISTRICT OF MICHIGAN

3 - - - - -

4 JASON COUNTS, DONALD KLEIN, C.A. NO.
5 OSCAR ZANORA, DEREK LONG, 1:16-CV-12541-TLL-PTM
6 HASSAM HIRMIZ, JASON SILVEUS,
7 JOHN MISKELLY, THOMAS HAYDUK,
8 CHRISTOPHER HEMBERGER and
9 JOSHUA RODRIGUEZ, individually
and on behalf of all others similarly
situated,

Plaintiffs,

-against-

10
11 GENERAL MOTORS LLC, ROBERT
12 BOSCH GMBH, and ROBERT
BOSCH, LLC, et al.,
Defendants.

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17 VIRTUAL VIDEOTAPED DEPOSITION OF RYAN HARRINGTON
18 NATICK, MASSACHUSETTS
19 Wednesday, July 22, 2020

20
21 VOLUME 1

22
23 REPORTED BY:
24 ROBIN CLARK, RPR, CLR
25

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<p style="text-align: right;">Page 2</p> <p>1 Virtual Videotaped Deposition of RYAN</p> <p>2 HARRINGTON, taken by Plaintiffs, pursuant to notice,</p> <p>3 commencing at 10:12 a m., by and before Robin L.</p> <p>4 Clark, Registered Professional Reporter and Notary</p> <p>5 Public in and for the Commonwealth of Pennsylvania.</p> <p>6 -----</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	<p style="text-align: right;">Page 4</p> <p>1 REMOTE APPEARANCES, continued:</p> <p>2</p> <p>3</p> <p>4 CLEARY GOTTLIEB STEEN & HAMILTON, LLP</p> <p>5 BY: PATRICK SWIBER, ESQ</p> <p>6 DAVID BRODSKY, ESQ</p> <p>7 RENEE GRIFFIN, ESQ</p> <p>8 2000 Pennsylvania Avenue, N W</p> <p>9 Washington, D C 20006</p> <p>10 202-947-1588</p> <p>11 pswiber@cgsh.com</p> <p>12 dbrodsky@cgsh.com</p> <p>13 rgriffin@cgsh.com</p> <p>14 For the Defendant Robert Bosch</p> <p>15 LLC</p> <p>16</p> <p>17 ALSO PRESENT REMOTELY:</p> <p>18</p> <p>19 STEVEN HURVITZ, ESQ</p> <p>20</p> <p>21 JOELLE ROSEN</p> <p>22</p> <p>23 HOWARD BRODSKY, VIDEOGRAPHER</p> <p>24</p> <p>25 JUSTON SMITHERS</p> <p>26</p> <p>27 -----</p> <p>28</p> <p>29</p> <p>30</p> <p>31</p> <p>32</p> <p>33</p> <p>34</p> <p>35</p>
<p style="text-align: right;">Page 3</p> <p>1 REMOTE APPEARANCES:</p> <p>2</p> <p>3 HAGENS BERMAN SOBOL SHAPIRO, LLP</p> <p>4 BY: GARTH WOJTANOWICZ, ESQ</p> <p>5 STEVE BERMAN, ESQ</p> <p>6 1301 Second Avenue, Suite 2000</p> <p>7 Seattle, Washington 98101</p> <p>8 206-623-7292</p> <p>9 garthw@hbsslaw.com</p> <p>10 steve@hbsslaw.com</p> <p>11 For the Plaintiffs</p> <p>12</p> <p>13 CARELLA, BYRNE, CECCHI, OLSTEIN, BRODY &</p> <p>14 AGNELLO, P C</p> <p>15 BY: JAMES E CECCHI, ESQ</p> <p>16 ZACH BOWER, ESQ</p> <p>17 5 Becker Farm Road</p> <p>18 Roseland, New Jersey 07068</p> <p>19 973-997-1700</p> <p>20 jcecchi@carellabyrne.com</p> <p>21 zbower@carellabyrne.com</p> <p>22 For the Plaintiffs</p> <p>23</p> <p>24 SEEGER WEISS, LLP</p> <p>25 BY: SHAUNA ITRL, ESQ</p> <p>26 1515 Market Street, Suite 1380</p> <p>27 Philadelphia, Pennsylvania 19102</p> <p>28 215-564-2300</p> <p>29 sitri@seegerweiss.com</p> <p>30 For the Plaintiffs</p> <p>31</p> <p>32 KIRKLAND & ELLIS, LLP</p> <p>33 BY: RENEE D SMITH, ESQ</p> <p>34 JEFFREY S BRAMSON, ESQ</p> <p>35 300 North LaSalle</p> <p>36 Chicago, Illinois 60654</p> <p>37 312-862-2000</p> <p>38 rdsmith@kirkland.com</p> <p>39 jeffrey.bramson@kirkland.com</p> <p>40 For the Defendant General</p> <p>41 Motors LLC</p> <p>42</p> <p>43</p> <p>44</p> <p>45</p>	<p style="text-align: right;">Page 5</p> <p>1 I N D E X</p> <p>2 WITNESS PAGE</p> <p>3 RYAN HARRINGTON</p> <p>4 BY MR. WOJTANOWICZ: 11</p> <p>5</p> <p>6 E X H I B I T S</p> <p>7 NUMBER DESCRIPTION MARKED</p> <p>8 Harrington</p> <p>9 Exhibit 1 Expert Report of Ryan 17</p> <p>10 Harrington</p> <p>11</p> <p>12 Exhibit 2 Chevrolet Cruze Diesel 268</p> <p>13 Discussion with EPA & CARB</p> <p>14 9/13/16 Document Bates</p> <p>15 GMCOUNTS0000851587 TO 51607</p> <p>16 Exhibit 3 Application for 287</p> <p>17 Certification 2015 Model</p> <p>18 Year Document Bates</p> <p>19 GMCOUNTS000812193 to</p> <p>20 GMCOUNTS000812238</p> <p>21 Exhibit 4 Certification Summary 287</p> <p>22 Information Report Bates</p> <p>23 GMCOUNTS000222607 to</p> <p>24 000222624</p> <p>25</p> <p>26</p> <p>27</p> <p>28</p> <p>29</p> <p>30</p> <p>31</p> <p>32</p> <p>33</p> <p>34</p> <p>35</p>

2 (Pages 2 - 5)

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<p style="text-align: right;">Page 22</p> <p>1 vehicle control theory and he supported me in 2 many, many cases related to diesel engine, 3 diesel engine control and emissions. 4 Q. What about David Anderson, what was 5 his role in assisting you? 6 A. So David is a Ph.D mechanical 7 engineer with a lot of experience in diesel 8 after treatment systems, so, you know, he kind 9 of brought in some general support and then 10 also assisted in the analysis of some of Mr. 11 Smithers' data, the PEMS reports and then the</p> <p>14 Q. And Sarah Parker, what was her 15 role? 16 A. So she was the project manager on 17 the project. She helped kind of, me kind of 18 make sure that everything was getting done and, 19 you know, kind of on a timely basis and then 20 provided some input on testing and other 21 aspects. 22 Q. And then Peter, I can't read my own 23 handwriting, Peter, is it Lillo? 24 A. Lillo, yes. 25 Q. What was his role?</p>	<p style="text-align: right;">Page 24</p> <p>1 in your work in this case? 2 A. He helped with some of the analyses 3 of, you know, kind of the PEMS setup and PEMS 4 protocols in the regulatory environment kind of 5 best practices related to PEMS testing. 6 Q. And what is Mr. Wishart's 7 credential or specialty, do you know? 8 A. So I think his -- he has got a 9 Ph.D. It's in engineering mechanics or 10 mechanical engineering. He's worked with PEMS 11 equipment in his prior work, fuel efficiency, 12 plug-in hybrid vehicles. I'm trying to think, 13 most of his work was kind of in the electric 14 vehicle plug-in hybrid emissions realm with 15 vehicles from an inspection and testing 16 capability. 17 Q. And Matthew Pooley, what was his 18 role? 19 A. So he helped, he's a Ph.D in 20 electrical engineering and computer science. 21 So he assisted myself and David Anderson 22 looking through the control strategy and Mr. 23 Levchenko's report. 24 Q. And what about Sri Danthurthi? 25 A. Danthurthi, so she helped with</p>
<p style="text-align: right;">Page 23</p> <p>1 A. So he was the Ph.D mechanical 2 engineer that performed the vehicle inspection. 3 Q. And did he do anything else 4 significant in connection with your work in 5 this case? 6 A. Most of it had to do with the 7 vehicle inspection and looking at the ECM data 8 and helped, you know, kind of analyze the 9 findings from the inspection. 10 Q. And that inspection you're 11 referring to, is that the inspection that 12 Defendants conducted of the diesel Cruze and 13 the gas Cruze vehicle that were used in the 14 testing that Mr. Smithers reported on? 15 A. That is correct. 16 Q. And Jeffrey Willard [sic], what was 17 his role? 18 A. Jeffrey Wishart. 19 Q. I'm sorry, Wishart. 20 A. So he was also at the inspection 21 looking at the PEMS equipment. I believe he 22 did the drive of the vehicle and most of his 23 focus was on the PEMS equipment and testing. 24 Q. Did he have any role beyond the 25 vehicle inspection that you were talking about</p>	<p style="text-align: right;">Page 25</p> <p>1 quality checking the report, so just verifying 2 some of the calculations and the numbers and 3 making sure the footnotes and everything lined 4 up. 5 Q. Are all the people that you have 6 identified, been able to identify as people 7 assisting you in preparing the report, are they 8 all employees of Exponent? 9 A. Yes. 10 Q. Did you retain any outside 11 consultants in order to help you with the work 12 that you did in this case? 13 A. I didn't retain any outside 14 support. The Analysis Group supports Kirkland 15 and Ellis and the client and I had some 16 interactions with their staff. 17 Q. And who did you interact with on 18 their staff? 19 A. Andrea Okie, Kris Comeaux, and 20 Kerri Leonhardt. 21 Q. And for what purpose were you 22 dealing with them? Why were you talking to 23 them? 24 MS. SMITH: I'm just going 25 to -- I'm so sorry, I'm just going to</p>

7 (Pages 22 - 25)

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Page 34

1 BY MR. WOJTANOWICZ:

2 Q. And describe the documents for me,

3 would you please?

4 A. They would have been light-duty or

5 heavy-duty regulations from the code of federal

6 regulations, so documents that are online that

7 the EPA and CARB would have been putting out.

8 Q. Did the Analysis Group provide any

9 summary or analysis relating to those

10 regulations that they provided to you?

11 A. There wasn't a separate analyses.

12 I think from time to time, they provided on the

13 report, provided some input on some of those

14 things that I had asked them to do and provided

15 some edits --

16 MS. SMITH: Yeah, I'm just

17 going -- I'm sorry to interrupt, I just

18 want to caution you that in terms of

19 any of the substance of draft reports,

20 things like that, I would just caution,

21 it's fine, he can answer the question

22 that Garth just asked, but I just want

23 to caution that the draft reports are

24 and communications related thereto, we

25 would maintain the privilege on.

Page 35

1 MR. WOJTANOWICZ: It didn't

2 sound like you were done with your

3 answer there. Do you want to continue?

4 THE WITNESS: Could you ask

5 the question again? I can't remember

6 what the question was.

7 MS. SMITH: I'm sorry, I

8 apologize for interrupting.

9 BY MR. WOJTANOWICZ:

10 Q. I was asking whether the Analysis

11 Group provided any analysis or commentary

12 relating to the regulatory documents that they

13 sent to you?

14 MS. SMITH: Okay. I'm going

15 to instruct not to answer. To the

16 extent there is commentary, he can

17 disclose if Analysis Group provided or

18 did work or facts or data upon which

19 Mr. Harrington relied.

20 THE WITNESS: So, again,

21 they provided some input into the

22 report, but I don't remember separate

23 analyses that they had done or

24 communicated.

25

Page 36

1 BY MR. WOJTANOWICZ:

2 Q. Did the Analysis Group draft any

3 sections of your report?

4 A. I had set forth the outline of the

5 report and kind of the structure of it and then

6 at my direction, my staff helped me draft some

7 of it. I think the Analysis Group did assist

8 in drafting a few parts of it or kind of

9 augmenting some of what we had and then my

10 staff or myself reviewed all of that.

11 Q. What sections of the report did the

12 Analysis Group help to draft?

13 A. I mean, I can't remember the exact

14 specifics, but I think in the appendices,

15 there's some discussion of the regulatory

16 requirements and testing. So if there was some

17 input from the Analysis Group, it would have

18 been mostly in those sections.

19 Q. Aside from information in the

20 appendices relating to regulatory requirements,

21 are there any other sections of the report that

22 you can recall the Analysis Group helping to

23 draft?

24 A. I don't remember them helping draft

25 any of those sections. They might have

Page 37

1 provided some input on, you know, how -- if

2 some sections didn't read very well and

3 provided some thoughts there, but --

4 MS. SMITH: Yeah, I'm going

5 to instruct not to answer and just to

6 be careful, like, in terms of

7 commentary you're asking, in terms of

8 wording, you can answer, if Analysis

9 Group did -- actually provided

10 analysis, data, facts upon which you're

11 relying.

12 BY MR. WOJTANOWICZ:

13 Q. For the sections that the Analysis

14 Group helped to draft, did you rely upon their

15 expertise in these areas in order to determine

16 whether that information should be included in

17 your report?

18 MS. SMITH: One more second.

19 Hold on.

20 THE WITNESS: I took their

21 information --

22 MS. SMITH: Hold on, one

23 second, sorry. Okay. You may answer.

24 Sorry, I just wanted to check.

25 THE WITNESS: So, again, as





10 (Pages 34 - 37)

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<p style="text-align: right;">Page 46</p> <p>1 selected by Kirkland and Ellis and provided to 2 you, correct? 3 A. It came from Kirkland and Ellis. 4 Q. So your staff didn't tell Kirkland 5 and Ellis, generate a list of Bates numbers and 6 ask Kirkland and Ellis, please give us these 7 Bates numbers? 8 MS. SMITH: Objection. 9 Objection. I'm going to instruct not 10 to answer on any communications with 11 Kirkland and Ellis. Hold on, let me 12 just see the question. Object to form. 13 Objection, misstates his testimony. He 14 didn't say every document in that list 15 was something provided by counsel. 16 BY MR. WOJTANOWICZ: 17 Q. Mr. Harrington, do you recall the 18 question? 19 A. No, if you could repeat it, that 20 would be great. 21 Q. I'm asking whether the list of 22 documents that you reviewed or considered shown 23 in Appendix C, was that a list of documents 24 that you specifically requested to review in 25 connection with your analysis in this case?</p>	<p style="text-align: right;">Page 48</p> <p>1 produced, EPA regulations and things along 2 those lines were things that my staff had put 3 together. 4 Q. Okay. So you didn't -- you did 5 not -- let me back up. How did you review the 6 documents that were provided to you that are 7 reflected with Bates numbers here, the 8 documents produced in this case? 9 MS. SMITH: Objection, form. 10 THE WITNESS: So when we 11 received the reports, I instructed my 12 staff and at my direction went through 13 the documents. I'm pretty sure we went 14 through every one of them or at least 15 go through almost every one of them to 16 see kind of what we had and then, you 17 know, kind of understood where the 18 documents were. And then I worked with 19 them to pull those together and 20 understand kind of what were the most 21 important documents and the documents 22 that I would rely upon. 23 BY MR. WOJTANOWICZ: 24 Q. Did you believe that there were 25 additional documents that you needed in order</p>
<p style="text-align: right;">Page 47</p> <p>1 MS. SMITH: Objection, form. 2 Objection, misstates prior testimony 3 about what Exhibit C is -- or Appendix 4 C is. 5 THE WITNESS: Mr. 6 Wojtanowicz, could you ask the question 7 again? I got lost again. 8 MR. WOJTANOWICZ: Would you 9 please read back the question, court 10 reporter? 11 ----- 12 (Whereupon, the reporter read back 13 as requested.) 14 ----- 15 THE WITNESS: So those are 16 the documents that were provided to me 17 or documents that my staff and I had 18 found during the course of our 19 analyses. 20 BY MR. WOJTANOWICZ: 21 Q. When you say that you found 22 documents during the course of your analyses, 23 how would you find documents? 24 A. So I think the documents towards 25 the tail end, so the documents that weren't</p>	<p style="text-align: right;">Page 49</p> <p>1 to perform a complete analysis for this case? 2 MS. SMITH: Objection, form. 3 THE WITNESS: You said 4 documents that I thought I needed. 5 Could you restate the question? 6 BY MR. WOJTANOWICZ: 7 Q. Were there additional documents 8 that your review of the documents provided to 9 you -- let me rephrase. Based on your review 10 of the documents provided that were produced in 11 this case, did you any at time believe that 12 there were additional documents likely to be in 13 the document productions that you needed to 14 review to perform your analysis? 15 A. Not that I can recall. You know, 16 anything that was in Mr. Smithers' report or 17 things that I used for my analyses, I don't 18 remember missing anything. I think there was 19 enough information there to support my 20 opinions. So I don't remember anything 21 additional that was needed. 22 Q. Was there any information that you 23 requested to assist you in your analysis that 24 you did not receive? 25 MS. SMITH: Objection, form.</p>

13 (Pages 46 - 49)

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<p style="text-align: right;">Page 70</p> 	<p style="text-align: right;">Page 72</p> <p>1 relying upon faulty data?</p> <p>2 BY MR. WOJTANOWICZ:</p> <p>3 Q. Yes.</p> <p>4 A. If I know it's faulty, I will</p> <p>5 investigate it and caveat what I know about it</p> <p>6 and provide some context if I find something</p> <p>7 that's unexpected about the data.</p>  <p>17 have been going for a little more than</p> <p>18 an hour, I think now would be a good</p> <p>19 time to take a short break before we</p> <p>20 move on. Is that okay?</p> <p>21 MS. SMITH: Yes, that's</p> <p>22 fine. Thank you.</p> <p>23 THE VIDEOGRAPHER: The time</p> <p>24 is 11:26. We are off the record.</p> <p>25 -----</p>
<p>24 BY MR. WOJTANOWICZ:</p> <p>25 Q. Now, you wouldn't have relied on</p> <p style="text-align: right;">Page 71</p> <p>1 the data if you believed that it was -- that</p> <p>2 the tests were improperly conducted or the data</p> <p>3 wasn't reliable, would you?</p> <p>4 MS. SMITH: Objection, form.</p> <p>5 THE WITNESS: Sorry, go</p> <p>6 ahead.</p> <p>7 MS. SMITH: Go ahead, sorry.</p> <p>8 THE WITNESS: All right. So</p> <p>9 could you clarify the statement, if I</p> <p>10 knew what about the data?</p> <p>11 BY MR. WOJTANOWICZ:</p> 	<p style="text-align: right;">Page 73</p> <p>1 (A recess was taken at this time.)</p> <p>2 -----</p> <p>3 THE VIDEOGRAPHER: The time</p> <p>4 is 11:43. We're on the record.</p> <p>5 BY MR. WOJTANOWICZ:</p> 
<p>21 Q. Is it your practice to include or</p> <p>22 rely upon faulty or false data in rendering</p> <p>23 expert opinions in litigation?</p> <p>24 MS. SMITH: Objection, form.</p> <p>25 THE WITNESS: You said</p>	

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Page 74	Page 76
	<p>1 consider and rely upon in giving your opinions</p> <p>2 in this case?</p> <p>3 MS. SMITH: Objection, form.</p> <p>4 THE WITNESS: So IUVP data,</p> <p>5 which is required to do in-use testing</p> <p>6 on vehicles and put it on a dyno and</p> <p>7 rerun, so in the certification tests</p> <p>8 with the information that I looked at</p> <p>9 that was submitted to the EPA and I</p> <p>10 think on one of them where there was a</p> <p>11 maintenance issue, some additional</p> <p>12 information was communicated to the</p> <p>13 EPA.</p> <p>14 BY MR. WOJTANOWICZ:</p> <p>15 Q. Is there other in-use testing data</p> <p>16 that you considered in connection with your</p> <p>17 opinions in this case?</p>
<p>10 Q. You don't have any information, do</p> <p>11 you, about what level of scrutiny the EPA gave</p> <p>12 to the testing data contained in GM's</p> <p>13 certificate of conformity, do you?</p> <p>14 MS. SMITH: Objection, form.</p> <p>15 THE WITNESS: So you said, I</p> <p>16 don't have any insider data, what is</p> <p>17 the question?</p> <p>18 BY MR. WOJTANOWICZ:</p> <p>19 Q. I said you don't have any</p> <p>20 information regarding the level of scrutiny the</p> <p>21 EPA subjected the data related to General</p> <p>22 Motors certificate of conformity for the Cruze</p> <p>23 vehicles, do you?</p> <p>24 A. I don't have any evidence of, you</p> <p>25 know, exactly what they did. I'm aware of</p>	<p>14 BY MR. WOJTANOWICZ:</p> <p>15 Q. Is there other in-use testing data</p> <p>16 that you considered in connection with your</p> <p>17 opinions in this case?</p> <p>18 I wasn't sure</p> <p>20 how you were using the word in-use testing, but</p> <p>21 the regulatory in-use testing, which is done on</p> <p>22 a dyno is what I was referring to.</p> <p>23 Q. Okay. Thanks for the</p> <p>24 clarification. So with respect to the IUVP</p> <p>25 in-use testing data GM provided to the EPA, you</p>
Page 75	Page 77
<p>1 their procedures and how they operate and some</p> <p>2 of the new procedures they've implemented since</p> <p>3 the Volkswagen notice of violation that they</p> <p>4 have done some additional checks and analyses</p> <p>5 of their own on data coming in.</p> <p>6 Q. To be clear, the certificate of</p> <p>7 conformity for the Cruze vehicles at issue in</p> <p>8 this case was issued before the Volkswagen</p> <p>9 notice of violation, correct?</p> <p>10 MS. SMITH: Objection, form.</p> <p>11 THE WITNESS: The</p> <p>12 certificate of conformity data would</p> <p>13 have been submitted prior to that,</p> <p>14 correct.</p> <p>15 BY MR. WOJTANOWICZ:</p> <p>16 Q. You also don't know to what extent</p> <p>17 the EPA examined the in-use testing data that</p> <p>18 General Motors provided to it for the Cruze</p> <p>19 vehicles, correct?</p> <p>20 MS. SMITH: Objection, form.</p> <p>21 THE WITNESS: Which in-use,</p> <p>22 the IUVP data, which in-use testing are</p> <p>23 you referring to?</p> <p>24 BY MR. WOJTANOWICZ:</p> <p>25 Q. Well, what in-use data did you</p>	<p>1 don't have any specific information about the</p> <p>2 level of scrutiny the EPA applied to that</p> <p>3 information, do you?</p> <p>4 MS. SMITH: Objection, form.</p> <p>5 THE WITNESS: I don't -- I'm</p> <p>6 sorry.</p> <p>7 MS. SMITH: Objection, form.</p> <p>8 THE WITNESS: I don't have</p> <p>9 specific knowledge of what they did in</p> <p>10 that case. I know procedurally what</p> <p>11 they do and how the EPA operates in</p> <p>12 reviewing the data, but I didn't see</p> <p>13 evidence exactly what EPA did in that,</p> <p>14 with that data.</p> <p>15 BY MR. WOJTANOWICZ:</p> <p>16 Q. And you don't have any evidence</p> <p>17 about the level of scrutiny the EPA applied to</p> <p>18 the PEMS testing data that it provided to the</p> <p>19 EPA relating to the Cruze diesel vehicles,</p> <p>20 correct?</p> <p>21 MS. SMITH: Objection, form.</p> <p>22 THE WITNESS: So typically</p> <p>23 that data is not made public. I know</p> <p>24 with the PEMS data, I believe there was</p> <p>25 some communication with Byron Bunker</p>

20 (Pages 74 - 77)

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<p style="text-align: right;">Page 78</p> <p>1 and others, some emails about, you</p> <p>2 know, some questions they were asking</p> <p>3 about the PEMS data, so that's some of</p> <p>4 the information that I saw.</p> <p>5 BY MR. WOJTANOWICZ:</p> <p>6 Q. The bottom line is you don't know</p> <p>7 how deeply the EPA dug into any of this testing</p> <p>8 data other than the fact that this data was</p> <p>9 given to it, right?</p> <p>10 MS. SMITH: Objection, form.</p> <p>11 Misstates testimony.</p> <p>12 THE WITNESS: So that</p> <p>13 information is typically not made</p> <p>14 public. So I didn't see anything</p> <p>15 specific to that, you know, exactly</p> <p>16 what they did in relation to that data</p> <p>17 that was submitted.</p> <p>18 BY MR. WOJTANOWICZ:</p> <p>19 Q. Is it your opinion that any</p> <p>20 information submitted to the EPA is inherently</p> <p>21 reliable because of the potential scrutiny that</p> <p>22 it's subject to?</p> <p>23 A. Could you restate that question?</p> <p>24 Q. Is it your opinion that any</p> <p>25 information or data submitted to the EPA is</p>	<p style="text-align: right;">Page 80</p> <p>1 is really kind of the combination of</p> <p>2 the two of those is using a PEMS unit</p> <p>3 to do on-road testing of emissions.</p> <p>4 BY MR. WOJTANOWICZ:</p> <p>5 Q. Again, I am not asking about the</p> <p>6 other kinds of tests you may or may not have</p> <p>7 performed, I'm asking you specifically about</p> <p>8 PEMS testing for purposes of analyzing diesel</p> <p>9 vehicle emissions. So if you can answer my</p> <p>10 question, please. Have you ever conducted a</p> <p>11 PEMS test for the purpose of analyzing diesel</p> <p>12 vehicle emissions?</p> <p>13 MS. SMITH: Objection, form.</p> <p>14 THE WITNESS: I think I</p> <p>15 answered that, but I said I had not</p> <p>16 conducted PEMS testing. I provided</p> <p>17 some context to the other testing, but</p> <p>18 I think I clearly stated I hadn't</p> <p>19 conducted PEMS testing on a diesel</p> <p>20 vehicle.</p> <p>21 BY MR. WOJTANOWICZ:</p> <p>22 Q. Have you ever conducted a PEMS test</p> <p>23 for purpose of analyzing emissions on a</p> <p>24 gasoline vehicle?</p> <p>25 A. I have not.</p>
<p style="text-align: right;">Page 79</p> <p>1 inherently more reliable just because it's</p> <p>2 submitted to the EPA?</p> <p>3 A. I don't know if you can say it is</p> <p>4 inherently more reliable, but you're submitting</p> <p>5 it to an entity that has to look into it and,</p> <p>6 you know, or an OEM knows that that data and</p> <p>7 those test results can be audited by the EPA,</p> <p>8 so there's definitely increased scrutiny on the</p> <p>9 data and what's going to be done with it.</p> <p>10 Q. Have you ever conducted personally</p> <p>11 a PEMS tests on the vehicle?</p> <p>12 A. I have not conducted PEMS testing.</p> <p>13 I've conducted FTP testing, but not PEMS</p> <p>14 testing. And I've conducted a lot of on-road</p> <p>15 fuel economy testing, which has some of the</p> <p>16 inherent variability with PEMS testing.</p> <p>17 Q. But specifically with respect to</p> <p>18 PEMS testing for purposes of analyzing diesel</p> <p>19 vehicle emissions, you have never conducted a</p> <p>20 test like that, correct?</p> <p>21 MS. SMITH: Objection, form.</p> <p>22 THE WITNESS: I have not</p> <p>23 conducted PEMS testing. Again, I've</p> <p>24 conducted FTP testing for emissions and</p> <p>25 conducted on-road testing, which PEMS</p>	<p style="text-align: right;">Page 81</p> <p>1 Q. Have you ever designed test route</p> <p>2 for purpose of running a PEMS test to analyze</p> <p>3 emissions on a diesel or gasoline vehicle?</p> <p>4 MS. SMITH: Objection, form.</p> <p>5 THE WITNESS: I have not</p> <p>6 designed a route for PEMS testing.</p> <p>7 I've done, again, fuel economy testing</p> <p>8 for on road commissions and fuel</p> <p>9 economy, not a PEMS testing route.</p> <p>10 BY MR. WOJTANOWICZ:</p> <p>11 Q. Have you ever hooked up or set up a</p> <p>12 PEMS unit on a vehicle for purposes of</p> <p>13 emissions testing?</p> <p>14 A. I have not.</p> <p>15 Q. Have you ever hooked up -- or let</p> <p>16 me rephrase this. Have you ever directed that</p> <p>17 a PEMS unit be attached to a vehicle and then</p> <p>18 test it on a dynamometer for purposes of</p> <p>19 assessing whether the PEMS was accurate or not?</p> <p>20 MS. SMITH: Objection, form.</p> <p>21 THE WITNESS: I have not.</p> <p>22 BY MR. WOJTANOWICZ:</p> <p>23 Q. Have you ever designed a testing</p> <p>24 program using a PEMS unit for purposes of</p> <p>25 analyzing diesel or gas vehicle emissions?</p>

21 (Pages 78 - 81)

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<p style="text-align: right;">Page 82</p> <p>1 A. I have not.</p> <p>2 Q. Have you received any formal</p> <p>3 training in using a PEMS analyzer?</p> <p>4 A. Again, not a PEMS analyzer, I've</p> <p>5 done other emissions analytics, but not a</p> <p>6 specific PEMS unit.</p> <p>7 Q. Have you received, for example, any</p> <p>8 informal training, like attended a seminar or a</p> <p>9 demonstration by a manufacturer of a PEMS unit</p> <p>10 to learn how the PEMS unit works?</p> <p>11 MS. SMITH: Objection, form.</p> <p>12 THE WITNESS: I have not.</p> <p>13 BY MR. WOJTANOWICZ:</p> <p>14 Q. Was the use of a PEMS unit the part</p> <p>15 of any aspect of your formal education? I know</p> <p>16 we'll go into that later, but have you had any</p> <p>17 classes or formal university training that</p> <p>18 relates specifically to the use of a PEMS unit?</p> <p>19 A. When I went to school, PEMS units</p> <p>20 weren't typically in use or hadn't been very</p> <p>21 widespread in use.</p> <p>22 Q. Okay. So the answer is no, there</p> <p>23 weren't any classes offered at the time you</p> <p>24 were in school that related to how to set up or</p> <p>25 use a PEMS unit?</p>	<p style="text-align: right;">Page 84</p> <p>1 about how the Sensors, Inc. PEMS unit works?</p> <p>2 MS. SMITH: Objection, form.</p> <p>3 THE WITNESS: I don't</p> <p>4 remember if I asked him to call or if I</p> <p>5 had asked him some questions and he</p> <p>6 thought it was -- he needed to clarify</p> <p>7 it with them, I can't remember the</p> <p>8 exact specifics of the conversation.</p> <p>9 BY MR. WOJTANOWICZ:</p> <p>10 Q. You're aware, aren't you, that</p> <p>11 Sensors, Inc. was the manufacturer of the PEMS</p> <p>12 unit that Mr. Smithers used in his testing</p> <p>13 program?</p> <p>14 A. Yes, the Semtech unit, yes.</p> <p>15 Q. Have you personally reviewed the</p> <p>16 user's manuals or the manuals for the Semtech</p> <p>17 PEMS unit?</p> <p>18 MS. SMITH: Objection, form.</p> <p>19 THE WITNESS: I can't say</p> <p>20 that I reviewed every aspect of it, but</p> <p>21 I did review the materials and some of</p> <p>22 the owner's manual pieces of that</p> <p>23 Semtech unit.</p> <p>24 BY MR. WOJTANOWICZ:</p> <p>25 Q. What parts of the owner's manual do</p>
<p style="text-align: right;">Page 83</p> <p>1 A. Not specific to a PEMS unit, no.</p> <p>2 It was on-road testing in itself.</p> <p>3 Q. In connection with your work on</p> <p>4 this case, have you spoken with any PEMS unit</p> <p>5 manufacturers regarding the proper use of PEMS</p> <p>6 equipment?</p> <p>7 A. I have not. Jeff Wishart who works</p> <p>8 for me has done some PEMS testing and been a</p> <p>9 part of PEMS testing, so I had spoke to him</p> <p>10 about some the aspects of it.</p> <p>11 Q. But you personally did not reach</p> <p>12 out to, for example, Sensors, Inc. in order to</p> <p>13 ask them about how their PEMS unit that they</p> <p>14 manufacture works, did you?</p> <p>15 A. I did not reach out to them.</p> <p>16 Q. Did you ask Mr. Wishart to do that</p> <p>17 for you?</p> <p>18 A. I can't remember if he had</p> <p>19 looked -- he looked into some of their manuals</p> <p>20 and I can't remember if he called to clarify a</p> <p>21 few different aspects, but I know he'd reviewed</p> <p>22 their manuals and there may have been a phone</p> <p>23 call, but I can't remember for sure.</p> <p>24 Q. Did you ask him to call the</p> <p>25 manufacturer to get additional information</p>	<p style="text-align: right;">Page 85</p> <p>1 you recall reviewing?</p> <p>2 A. There was the discussion of</p> <p>3 operating PEMS temperatures. I think some of</p> <p>4 the setup pieces, but it was a while ago, so I</p> <p>5 can't remember the exact sections.</p> <p>6 Q. Have you ever testified as an</p> <p>7 expert witness in a case about PEMS testing</p> <p>8 other than the testimony you're providing right</p> <p>9 now in this case?</p> <p>10 A. I have got to think if any of that</p> <p>11 was confidential and privileged. I don't</p> <p>12 believe it is in relation to some of the other</p> <p>13 cases that we had mentioned before, I had</p> <p>14 testified to some of the results of some PEMS</p> <p>15 testing.</p> <p>16 Q. In what cases?</p> <p>17 A. Those would have been the</p> <p>18 Volkswagen cases.</p> <p>19 Q. And were you testifying with</p> <p>20 respect to PEMS testing conducted by Exponent</p> <p>21 or by someone else?</p> <p>22 MS. SMITH: Objection, form.</p> <p>23 THE WITNESS: It would have</p> <p>24 been by Volkswagen and West Virginia</p> <p>25 University.</p>

22 (Pages 82 - 85)

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<p style="text-align: right;">Page 110</p> <p>1 for you, Peter and Jeff, with instructions</p> <p>2 about the speeds that they should achieve</p> <p>3 during the course of the test drive of the</p> <p>4 diesel test vehicle?</p> <p>5 A. I don't remember a specific</p> <p>6 discussion other than, you know, drive some,</p> <p>7 stop and go, and some high speed driving, but</p> <p>8 it wasn't a prescriptive profile, no.</p> <p>9 Q. And these were oral instructions,</p> <p>10 it wasn't a written protocol for how to conduct</p> <p>11 these tests?</p> <p>12 A. That's correct. It was more of a</p> <p>13 test drive, not an actual emissions test.</p> <p>14 Q. Okay. Did you provide Peter and</p> <p>15 Jeff with instructions about the duration of</p> <p>16 time as opposed to length and distance that</p> <p>17 they should conduct their test drive of the</p> <p>18 diesel test vehicle?</p> <p>19 MS. SMITH: Objection, form.</p> <p>20 THE WITNESS: Again, since</p> <p>21 we weren't doing any affirmative</p> <p>22 testing, I don't think there was any</p> <p>23 specifics about the amount of time to</p> <p>24 drive the vehicle.</p> <p>25</p>	<p style="text-align: right;">Page 112</p> <p>1 Q. Sure. I'm just asking aside from</p> <p>2 the inspections of the test vehicles we have</p> <p>3 been discussing, have you or anyone working</p> <p>4 under your direction conducted any other</p> <p>5 inspection of a Cruze vehicle in connection</p> <p>6 with your work in this case?</p> <p>7 A. No.</p> <p>8 Q. Have you ever inspected any other</p> <p>9 Cruze vehicle for any other purpose?</p> <p>10 A. Not that I can recall.</p> <p>11 Q. So you identified earlier, you said</p> <p>12 that Jeff Wishart had experience with PEMS</p> <p>13 testing, correct?</p> <p>14 A. He had been part of system PEMS</p> <p>15 testing, that's correct.</p> <p>16 Q. Is there anyone else who was</p> <p>17 working on, among the people assisting you in</p> <p>18 your work in this case, that to your knowledge</p> <p>19 has experience with PEMS testing?</p> <p>20 A. There's others that have done</p> <p>21 emissions testing, but specific to PEMS, I do</p> <p>22 not believe so.</p> <p>23 Q. For purposes of your opinions in</p> <p>24 this case to the extent that you are relying on</p> <p>25 inputs from your team, is it fair to say Jeff</p>
<p style="text-align: right;">Page 111</p> <p>1 BY MR. WOJTANOWICZ:</p> <p>2 Q. Did you instruct Peter and Jeff</p> <p>3 with respect to the length of time, distance,</p> <p>4 that the gas test vehicle should be driven?</p> <p>5 MS. SMITH: Objection, form.</p> <p>6 THE WITNESS: No, if I</p> <p>7 remember correctly, it was the same</p> <p>8 instructions for the diesel or</p> <p>9 something similar to it.</p> <p>10 BY MR. WOJTANOWICZ:</p> <p>11 Q. Did you give them specific</p> <p>12 instructions not to use an active OBD logger</p> <p>13 during their test drive of the gas test</p> <p>14 vehicle?</p> <p>15 A. I don't remember a discussion about</p> <p>16 that.</p> <p>17 Q. Setting aside the inspections that</p> <p>18 were done by Peter and Jeff for you on the gas</p> <p>19 and diesel test vehicles, did you or anyone</p> <p>20 working under your direction conduct any other</p> <p>21 inspections of Cruze vehicles in connection</p> <p>22 with your work in this case?</p> <p>23 A. Sorry, something popped up and</p> <p>24 blurred part of your question there. Could you</p> <p>25 restate it?</p>	<p style="text-align: right;">Page 113</p> <p>1 Wishart is the one whose experience you were</p> <p>2 drawing on to reach your opinions in this case?</p> <p>3 MS. SMITH: Objection, form.</p> <p>4 THE WITNESS: So in part,</p> <p>5 some of his information, myself and my</p> <p>6 staff have done some work looking at</p> <p>7 PEMS data, understanding, you know,</p> <p>8 best practices with PEMS data, how it</p> <p>9 has been conducted and, again, you</p> <p>10 know, PEMS data is really the</p> <p>11 culmination of dyno testing with</p> <p>12 on-road testing, so the same principles</p> <p>13 apply. But as it relates to PEMS, Jeff</p> <p>14 would have been the one with the</p> <p>15 experience.</p> <p>16 BY MR. WOJTANOWICZ:</p> <p>17 Q. Is there anybody else who assisted</p> <p>18 you in this case whose experience with PEMS</p> <p>19 testing you relied on in reaching your opinions</p> <p>20 in this case?</p> <p>21 A. No.</p> <p>22 Q. What's your understanding of Jeff</p> <p>23 Wishart's educational background?</p> <p>24 A. So he has a Ph.D from Arizona State</p> <p>25 University. I believe it's in either</p>

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<p style="text-align: right;">Page 138</p> <p>1 MS. SMITH: Objection, form. 2 THE WITNESS: Yes, that's my 3 recollection. 4 BY MR. WOJTANOWICZ: 5 Q. What about David Anderson, is he 6 also a computer scientist? 7 A. I believe he's a mechanical 8 engineer that spent quite a bit a time with 9 controls for engines and after-treatment 10 systems. 11 Q. So is it fair to say that Dave 12 Anderson and Matt Pooley performed the direct 13 analysis of the software code at your 14 direction? 15 A. At my direction and with my input, 16 we reviewed it. They did some deeper dives 17 when I asked for some additional information to 18 be gleaned from Dr. Levchenko's report. 19 Q. And how did they convey from what 20 they learned to you? Was it oral? Was it in 21 writing? 22 A. It was oral and then it was the 23 drafting of the text in those areas. So I 24 would talk to them about their findings and 25 then they drafted it up or drafted up the</p>	<p style="text-align: right;">Page 140</p> <p>1 Exhibit 1, which is the copy of your report. 2 And I will go through some of the items in your 3 CV, which is at Appendix A following the body 4 of your report. 5 A. Okay. I'm there. 6 Q. Okay. First of all, is your CV, is 7 this the most up-to-date version of the CV that 8 you have? 9 A. Yes, this is the most up-to-date 10 one. 11 Q. And is everything accurate in here 12 to the best of your knowledge? 13 A. Yes. 14 Q. I would like to go through your 15 prior work experience. You've been with 16 Exponent since 2017; is that correct? 17 A. That is correct. 18 Q. Describe for me in general what you 19 primarily do at Exponent. 20 A. So I'm a principal at Exponent. My 21 role is to work with clients, understand their 22 needs, develop new work, whether it be, you 23 know, kind of consulting work or expert 24 testimony. So my work is really, you know, 25 working with clients and helping understand how</p>
<p style="text-align: right;">Page 139</p> <p>1 observations for the report. 2 Q. Did they summarize their findings 3 for you in any way other than putting it in a 4 draft report? 5 A. My recollection is it was all done 6 in the report. 7 Q. Because you didn't do the direct 8 analysis of the software code yourself in its 9 entirety, you had to rely on their analysis in 10 your consideration of the software issues 11 mentioned in your report; is that true? 12 MS. SMITH: Objection -- 13 THE WITNESS: So it was -- 14 sorry, go ahead, Renee. 15 MS. SMITH: Just objection, 16 form. 17 THE WITNESS: So it was at 18 my direction and with my input. I did 19 rely on some of their findings and then 20 reevaluated what they had done and 21 walked through the findings with them 22 and did some of my own review of Dr. 23 Levchenko's report. 24 BY MR. WOJTANOWICZ: 25 Q. So I would like you to turn back to</p>	<p style="text-align: right;">Page 141</p> <p>1 I might be able to help them from a consulting 2 perspective in areas of vehicle engineering, 3 whether it's engines and controls, advanced 4 driver-assistance systems, automated vehicles, 5 government regulations. 6 Q. What percentage of your work would 7 you say since you joined Exponent relates to 8 providing expert testimony or expert consulting 9 services, whether or not it leads to the 10 generation of a report or not? 11 A. I would say kind of over the 12 three-plus years, something around kind of 13 50/50. Fifty percent in consulting, 50 percent 14 expert witness. 15 Q. With respect to your consulting 16 work, what percentage of your consulting work 17 relates to vehicle, diesel vehicle emissions? 18 A. So specifically diesel vehicles, on 19 the consulting side, I can't think of any work 20 in that area. 21 Q. Do you do any -- then what 22 percentage of your consulting work relates to 23 gasoline vehicle emissions? 24 A. I'm sorry, I missed it, was it on 25 the consulting side or the expert testimony</p>

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<p style="text-align: right;">Page 150</p> <p>1 group, typically, was more on the connected and 2 automated vehicle front. 3 Q. And the issues that were rising in 4 connection with the connected and automated 5 vehicle front, that wasn't implicating specific 6 connected automated vehicle control of 7 emissions; is that true? 8 A. No, I mean, there was some 9 discussion and analyses of the impact of 10 connected and automated vehicles on emissions 11 from the transportation system and fuel 12 economy, but not only specific to emissions. 13 Q. Did any of the work that you did as 14 division chief on the connective and automated 15 technology -- 16 A. You know, I hate to do this to you. 17 I have somebody next door to me in an office 18 that is speaking loudly and I am hoping that 19 doesn't get picked up. Could we take a quick 20 break, so I can inform them? It is distracting 21 me and I'm hoping it's not providing some 22 feedback to all of you. 23 MR. WOJTANOWICZ: We can't 24 hear it, but that's fine, yeah. 25 MS. SMITH: Yeah.</p>	<p style="text-align: right;">Page 152</p> <p>1 While you were division chief, did your work 2 involve conducting any dynamometer testing on 3 diesel or gas vehicles? 4 A. It did not. When I was division 5 chief, I also did some work on fuel economy 6 standards, which is why I mentioned, so I still 7 did some work on CAFE, but during the time as 8 division chief, it wasn't related to 9 dynamometer testing or conducting dynamometer 10 testing. 11 Q. Now, describe for me, if you would, 12 your responsibilities while you are a senior 13 engineer at the Department of Transportation 14 from 2007 through 2012. 15 A. When I first started, I worked, 16 like, six months or a year on accident 17 avoidance technology or advanced 18 driver-assistance systems and accident 19 avoidance technologies, but then most of the 20 time was working as an engineer on the 21 Corporate Average Fuel Economy standards. So 22 at that time, the DOT in coordination with the 23 EPA and the California Air Resources Board 24 promulgated many rule makings related to fuel 25 economy and CO2 emissions. And my role, the</p>
<p style="text-align: right;">Page 151</p> <p>1 THE WITNESS: Okay. Hold on 2 one second. 3 THE VIDEOGRAPHER: The time 4 is 1:35. We're off the record. 5 ----- 6 (A recess was taken at this time.) 7 ----- 8 THE VIDEOGRAPHER: So the 9 time is 1:36 and we're on the record. 10 BY MR. WOJTANOWICZ: 11 Q. Mr. Harrington, did any of the work 12 that you performed as division chief from 2012 13 to 2017 involve conducting dynamometer testing 14 on diesel vehicles? 15 A. It didn't involve testing on dyno. 16 My work, obviously, on fuel economy standards 17 and helping to set those standards is, you 18 know, the test results from the OEMs is what 19 feeds into the fuel economy standards, so there 20 was that work, but I didn't do specific 21 dynamometer testing. 22 Q. I'm just going to try to limit it 23 now to just your time as division chief, you 24 know, in case if that makes a difference, if 25 you're referring back to a different time.</p>	<p style="text-align: right;">Page 153</p> <p>1 Volpe Center developed a model that the DOT 2 used in coordination with EPA in their modeling 3 to develop the scenarios and the analyses that 4 were done to help set the standards. And so my 5 work was to develop the assumptions about what 6 technology was available, the efficacy, what 7 type of fuel consumption reductions could be 8 gleaned from it, cost, availability, what 9 constraints there might be about bringing that 10 technology out on an individual vehicle and at 11 the fleet level, and so my role was setting up 12 those assumptions about what fuel economy and 13 greenhouse gas-reducing technologies were 14 available and what would be projected out into 15 the future and I had to present that to senior 16 officials at EPA, CARB, the White House, and 17 explain the rationale for the assumptions that 18 went into that. And so that was the most of 19 what I had done as a senior engineer, working 20 on those CAFE standards. 21 Q. Did any part of that work relating 22 to the CAFE standards as a senior engineer 23 involve conducting dynamometer testing on 24 vehicles to measure emissions? 25 A. So it didn't require direct</p>

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<p style="text-align: right;">Page 154</p> <p>1 dynamometer measurements, but in order to</p> <p>2 comply with the CAFE regulations, OEMs have to,</p> <p>3 original equipment manufacturers have to</p> <p>4 conduct dyno testing to understand how they</p> <p>5 perform relative to the fuel economy standards</p> <p>6 and so part of setting the standards is</p> <p>7 evaluating the five-cycle testing that EPA does</p> <p>8 for fuel economy testing and that the OEMs have</p> <p>9 to follow when they comply with the EPA and DOT</p> <p>10 regulations, and then look at on cycle what</p> <p>11 they get versus what that means for the kind of</p> <p>12 the real world or on road as it relates to fuel</p> <p>13 economy and greenhouse gas standards.</p> <p>14 Q. So in connection with your work on</p> <p>15 the CAFE standards, you considered dynamometer</p> <p>16 testing data that was provided to you from</p> <p>17 OEMs, fair?</p> <p>18 A. And the relationship that that has</p> <p>19 to on road emissions and on road fuel economy.</p> <p>20 Q. But you didn't have to conduct any</p> <p>21 of your own or you did not conduct any of your</p> <p>22 own dynamometer testing on vehicles as part of</p> <p>23 that job, correct?</p> <p>24 A. I did network to the EPA's lab and</p> <p>25 worked with their engineers who had conducted</p>	<p style="text-align: right;">Page 156</p> <p>1 submitted the data to you after it was done,</p> <p>2 right?</p> <p>3 A. That's correct.</p> <p>4 Q. With respect to the EPA testing,</p> <p>5 dynamometer testing that you referred to, were</p> <p>6 you actually there during the dynamometer</p> <p>7 testing process?</p> <p>8 A. No, I would review the results with</p> <p>9 EPA after the fact.</p> <p>10 Q. Okay.</p> <p>11 A. I had visited their labs a few</p> <p>12 times and saw their equipment and talked to</p> <p>13 them about the work we were doing, but I wasn't</p> <p>14 there during the testing.</p> <p>15 Q. During the course of your review</p> <p>16 of -- let me back up a second. So you said</p> <p>17 that you considered the dynamometer testing</p> <p>18 results in conjunction with additional</p> <p>19 information related to real-world performance,</p> <p>20 fuel economy performance; is that correct?</p> <p>21 A. Yeah.</p> <p>22 Q. And how was the real-world fuel</p> <p>23 economy performance of the vehicles measured?</p> <p>24 A. I'm trying to remember back to the</p> <p>25 analyses, it was called the on-road fuel</p>
<p style="text-align: right;">Page 155</p> <p>1 some of the testing and evaluated that data as</p> <p>2 we were thinking about what assumptions could</p> <p>3 be made about the fuel economy and greenhouse</p> <p>4 gas-reducing technologies.</p> <p>5 Q. So there were some people at the</p> <p>6 EPA that were conducting dynamometer testing of</p> <p>7 vehicles and you considered that data in</p> <p>8 connection with your work helping to develop</p> <p>9 the CAFE standards?</p> <p>10 A. Correct.</p> <p>11 Q. But you didn't sort of either</p> <p>12 design or run those dynamometer testing</p> <p>13 programs, you just considered the data, right?</p> <p>14 A. That's correct.</p> <p>15 Q. And the same goes with the OEM data</p> <p>16 from dynamometer testing that was submitted to</p> <p>17 the EPA, you considered those results in</p> <p>18 conjunction with other information, but you</p> <p>19 didn't design, implement, or run those</p> <p>20 dynamometer testing for the OEM programs, did</p> <p>21 you?</p> <p>22 A. That's correct.</p> <p>23 Q. And for that OEM testing,</p> <p>24 dynamometer testing, you weren't present during</p> <p>25 those test runs on a dynamometer, they just</p>	<p style="text-align: right;">Page 157</p> <p>1 economy gap. And I'm trying to remember the</p> <p>2 exact data that was used by the EPA and DOT to</p> <p>3 develop kind of an offset to show that the</p> <p>4 emissions were typically higher or the CO2</p> <p>5 emissions and the fuel economy -- CO2 emissions</p> <p>6 were higher, fuel economy was lower on road</p> <p>7 than during the testing. I think there was</p> <p>8 some fleet studies that the EPA had done in the</p> <p>9 past that we had evaluated.</p> <p>10 Q. So you are aware that there are</p> <p>11 studies out there that indicate that under the</p> <p>12 CAFE standards on-road or real-world fuel</p> <p>13 economy performance tends to be significantly</p> <p>14 lower than the performance measured in the</p> <p>15 certification tests?</p> <p>16 A. As you said, the on-road fuel</p> <p>17 economy and fuel consumption go in different</p> <p>18 directions, so you said fuel economy is lower</p> <p>19 on road?</p> <p>20 Q. Correct.</p> <p>21 A. So in the past, it had been there</p> <p>22 was a bigger difference. The way that EPA had</p> <p>23 implemented five-cycle testing, that data is</p> <p>24 now closer. So on-road people can get better</p> <p>25 than the fuel economy listed and, you know,</p>

40 (Pages 154 - 157)

HIGHLY CONFIDENTIAL

<p style="text-align: right;">Page 218</p> <p>1 reflected in your report?</p> <p>2 A. I believe, yes, everything, the</p> <p>3 analyses that was done is in the report.</p> <p>4 Q. Were there any tests that you</p> <p>5 conducted or that were conducted under your</p> <p>6 direction in connection with reaching the</p> <p>7 opinions stated in the report that aren't</p> <p>8 referenced in here?</p> <p>9 A. You said tests?</p> <p>10 Q. Sure, tests.</p> <p>11 A. Tests, no.</p> <p>12 Q. What about any analyses, are there</p> <p>13 formal studies or analyses that you conducted</p> <p>14 in connection with reaching your opinions that</p> <p>15 are not referenced in the report?</p> <p>16 A. No, I can't think of anything, you</p> <p>17 know, the analyses evolved over time, but as</p> <p>18 they evolved, it's all in here, so I can't</p> <p>19 think of any analyses that are not represented.</p> <p>20 Q. And does the report, to the best of</p> <p>21 your ability, contain a complete statement of</p> <p>22 the reasons for the opinions that you have</p> <p>23 reached in this case?</p> <p>24 A. Yes, I believe it has got a</p> <p>25 thorough discussion of the bases for those</p>	<p style="text-align: right;">Page 220</p> <p>1 Plaintiffs' counsel, have you reviewed any new</p> <p>2 materials relating to the case since drafting</p> <p>3 your report?</p> <p>4 A. No.</p> <p>5 Q. Have you conducted any additional</p> <p>6 testing relating to the vehicles or the</p> <p>7 analyses for this case since you issued your</p> <p>8 report?</p> <p>9 A. No.</p> <p>10 Q. Have you done any new analyses of</p> <p>11 GM's testing data since you've issued your</p> <p>12 report?</p> <p>13 A. No.</p> <p>14 Q. Have you made any additional</p> <p>15 calculations relating to GM's analysis?</p> <p>16 A. No. I think I just went back and</p> <p>17 double checked some numbers and things like</p> <p>18 that, but nothing new.</p> <p>19 Q. Same questions for the Smithers</p> <p>20 report, have you conducted any new or</p> <p>21 additional analyses of his report since you</p> <p>22 issued yours?</p> <p>23 A. No.</p> <p>24 Q. And you haven't conducted any new</p> <p>25 analyses or calculations relating to Mr.</p>
<p style="text-align: right;">Page 219</p> <p>1 opinions.</p> <p>2 Q. Is there anything that you feel</p> <p>3 needs to be added to the report in order to</p> <p>4 make it a complete statement of your opinions</p> <p>5 and the reasons for those opinions?</p> <p>6 A. I can't think of anything that</p> <p>7 needs to be added, no.</p> <p>8 Q. Anything you can think of that</p> <p>9 needs to be changed?</p> <p>10 A. There was a few small little typos</p> <p>11 that I found as I reread it in preparation for</p> <p>12 this, but they're pretty small changes.</p> <p>13 Q. Other than typos, do you think</p> <p>14 there's anything about the report that needs to</p> <p>15 be changed in order to make it a complete and</p> <p>16 accurate statement of your opinions and the</p> <p>17 reasons for those opinions?</p> <p>18 A. No, other than the few typos that I</p> <p>19 think are pretty easy to square, there's</p> <p>20 nothing that needs to be added.</p> <p>21 Q. Have you changed any of your</p> <p>22 opinions since you submitted the report?</p> <p>23 A. No.</p> <p>24 Q. Aside from the documents you</p> <p>25 referred to earlier that you got yesterday from</p>	<p style="text-align: right;">Page 221</p> <p>1 Smithers' report?</p> <p>2 A. No, not that I can think of.</p> <p>3 Q. And at the time that you submitted</p> <p>4 your report, you had had an opportunity to</p> <p>5 review, obviously, Mr. Smithers' written</p> <p>6 report, correct?</p> <p>7 A. Correct.</p> <p>8 Q. And you did review that report?</p> <p>9 A. Yes.</p> <p>10 Q. You had also an opportunity to</p> <p>11 review Mr. Smithers' deposition testimony; is</p> <p>12 that correct?</p> <p>13 A. That's correct.</p> <p>14 Q. Did you review that yourself or did</p> <p>15 you have someone do it for you?</p> <p>16 MS. SMITH: Objection, form.</p> <p>17 THE WITNESS: A little bit</p> <p>18 of both, I reviewed good chunks of it</p> <p>19 and then I had a few other people -- or</p> <p>20 had somebody else review it as well.</p> <p>21 BY MR. WOJTANOWICZ:</p> <p>22 Q. I would like you to turn to</p> <p>23 Section 5.1.1 on page 11. This is the section</p> <p>24 where you describe in general terms some</p> <p>25 emission control systems that are used in the</p>

56 (Pages 218 - 221)

HIGHLY CONFIDENTIAL

<p style="text-align: right;">Page 246</p> <p>1 your rate is the rate that Exponent charges for</p> <p>2 you is \$450 an hour?</p> <p>3 A. That is correct, in 2020.</p> <p>4 Q. Was it less in 2019?</p> <p>5 A. Yeah, I believe it was 435 in 2019.</p> <p>6 Q. Okay. How many hours did you spend</p> <p>7 working on and generating the report that you</p> <p>8 filed in this case, you personally?</p> <p>9 A. I think it's in the, like, 350-hour</p> <p>10 range, something like that.</p> <p>11 Q. And then you listed a number of</p> <p>12 people who assisted you in the preparation of</p> <p>13 this report, you wrote sections of the report.</p> <p>14 Who among them do you think has spent the most</p> <p>15 time, spent the most time generating the</p> <p>16 report?</p> <p>17 MS. SMITH: Objection, form.</p> <p>18 THE WITNESS: So off memory,</p> <p>19 I would say Carmine Senatore, Sarah</p> <p>20 Parker, and Dave Anderson were the</p> <p>21 primary folks who helped me draft the</p> <p>22 report.</p> <p>23 BY MR. WOJTANOWICZ:</p> <p>24 Q. Can you give me a ballpark of how</p> <p>25 many hours you believe they spent helping draft</p>	<p style="text-align: right;">Page 248</p> <p>1 amount of time that it spent working on the</p> <p>2 case, correct?</p> <p>3 MS. SMITH: Objection.</p> <p>4 THE WITNESS: Yeah, so --</p> <p>5 MS. SMITH: Sorry.</p> <p>6 objection, foundation.</p> <p>7 THE WITNESS: When you said</p> <p>8 "billing," is that the number of hours</p> <p>9 billed, is that what you're asking?</p> <p>10 BY MR. WOJTANOWICZ:</p> <p>11 Q. Yes, how many hours, let's start</p> <p>12 there, how many hours has Exponent billed on</p> <p>13 this matter?</p> <p>14 A. I think up to the report 2,000,</p> <p>15 2100 hours, something like that.</p> <p>16 Q. So you think that Exponent billed</p> <p>17 approximately 2100 hours up until the time that</p> <p>18 the report was issued?</p> <p>19 A. I think that's a pretty fair</p> <p>20 assessment -- or a fair estimate, yeah.</p> <p>21 Q. And since you've issued the report,</p> <p>22 you've probably spent some more time preparing</p> <p>23 for deposition, attending today, but you</p> <p>24 haven't billed for that yet, right?</p> <p>25 A. Correct.</p>
<p style="text-align: right;">Page 247</p> <p>1 the report?</p> <p>2 A. So is that drafting and all the</p> <p>3 analyses up to that point?</p> <p>4 Q. Yes.</p> <p>5 A. So that it's less clear, I would</p> <p>6 say, like, 14-, 1500 hours, somewhere in there</p> <p>7 between the three of them.</p> <p>8 Q. So you think on average maybe 450</p> <p>9 or 500 hours into the working on the case for</p> <p>10 generating a report for Carmine Senatore, David</p> <p>11 Anderson, and Sarah Parker?</p> <p>12 A. Yeah, I would say it might be a</p> <p>13 little bit higher for some of them, but it's</p> <p>14 somewhere in that range.</p> <p>15 Q. Is there anybody else among the</p> <p>16 people that assisted you who you think have</p> <p>17 even more hours than that that they spent</p> <p>18 working on generating the report?</p> <p>19 A. No.</p> <p>20 Q. Do you know what the total amount</p> <p>21 that Exponent has billed in connection with</p> <p>22 this case is?</p> <p>23 A. What do you mean by billed, hours?</p> <p>24 Q. Yeah, I assume Exponent bills,</p> <p>25 issues bills to Kirkland and Ellis based on the</p>	<p style="text-align: right;">Page 249</p> <p>1 Q. How do the hourly rates of the</p> <p>2 people that helped you out compare to your</p> <p>3 hourly rate of \$450 an hour, are they higher,</p> <p>4 lower, same, all over the place?</p> <p>5 MS. SMITH: Objection, form.</p> <p>6 THE WITNESS: I think</p> <p>7 everybody is lower.</p> <p>8 BY MR. WOJTANOWICZ:</p> <p>9 Q. Okay. I'm going to go back to kind</p> <p>10 of discussing the subject matter found in</p> <p>11 Section 5.1.1 on your report, just the general</p> <p>12 overview. Moving onto the selective catalytic</p> <p>13 reduction system. Now, that system works</p> <p>14 essentially by spraying urea or DEF, which is</p> <p>15 also known as diesel exhaust fluid or DEF,</p> <p>16 D-E-F, spraying that in controlled amounts onto</p> <p>17 a component containing a catalyst that reacts,</p> <p>18 that reacts along with the urea and the</p> <p>19 incoming NOx to essentially neutralize the NOx.</p> <p>20 Is that a fair summary?</p> <p>21 A. It reduces the NOx, yes, over a</p> <p>22 catalyst using DEF or urea.</p> <p>23 Q. Okay. Because there's a -- the</p> <p>24 catalyst basically facilitates a reaction</p> <p>25 between the urea and the NOx that converts that</p>

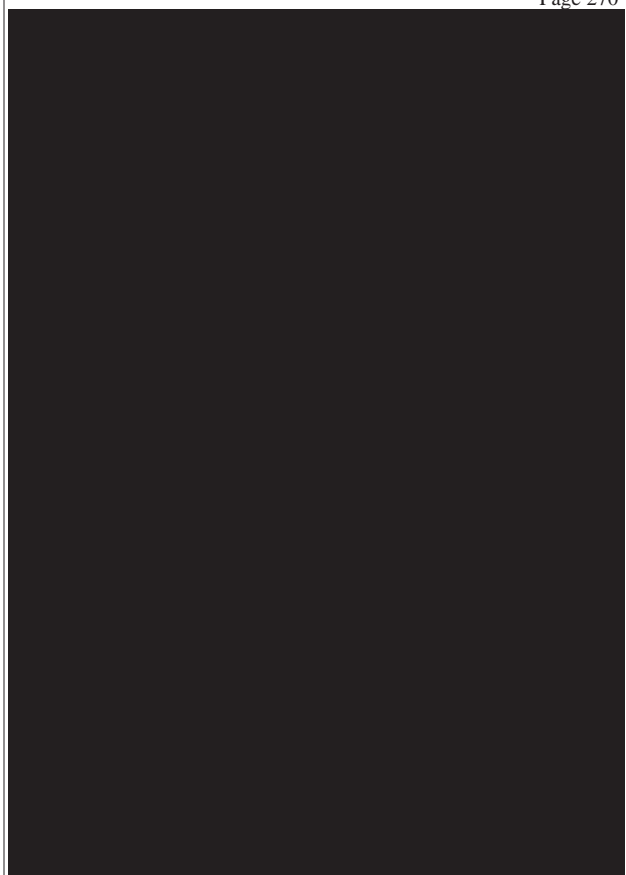

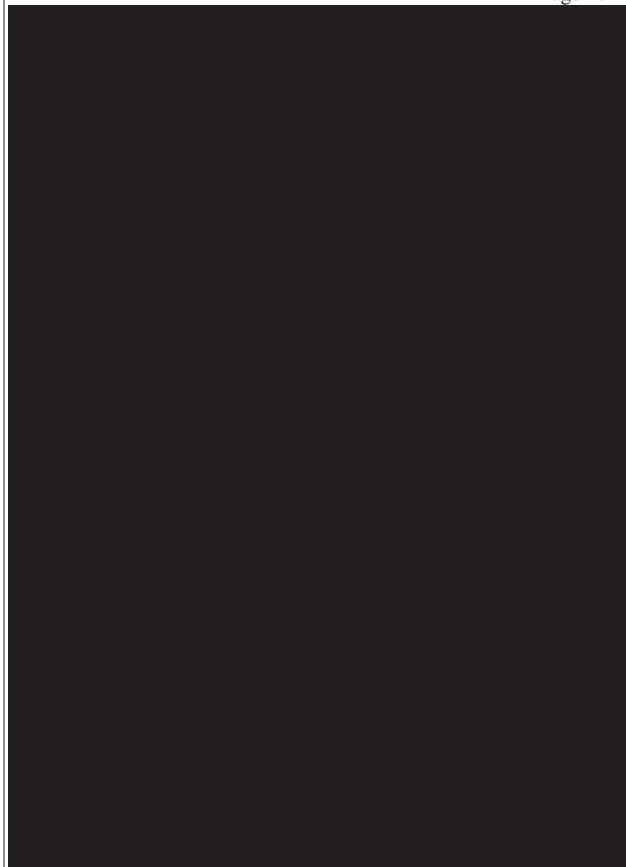

63 (Pages 246 - 249)

HIGHLY CONFIDENTIAL

<p style="text-align: right;">Page 266</p> <p>[REDACTED]</p> <p>11 BY MR. WOJTANOWICZ:</p> <p>12 Q. I would like you to, if you can</p> <p>13 pull out the -- I'm not exactly sure if the</p> <p>14 documents you got are in envelopes or folders</p> <p>15 or whatever, pull out the one that is numbered</p> <p>16 19, if you would, please. Everyone else will</p> <p>17 hopefully have that available to them in the</p> <p>18 exhibit share folder now.</p> <p>19 MR. BRODSKY: So this is</p> <p>20 Exhibit 2?</p> <p>21 MS. SMITH: Yeah, you know,</p> <p>22 hold on one second, let me just make</p> <p>23 sure it's refreshing, hold on one</p> <p>24 second. Yes.</p> <p>25 -----</p>	<p style="text-align: right;">Page 268</p> <p>1 page number?</p> <p>2 Q. Page number 14 that's on the slide</p> <p>3 and the Bates page number ends with 600.</p> <p>4 A. Yes, 600. Okay.</p> <p>[REDACTED]</p>
<p style="text-align: right;">Page 267</p> <p>1 (Chevrolet Cruze Diesel Discussion</p> <p>2 with EPA & CARB 9/13/16 Document Bates</p> <p>3 GMCOUNTS0000851587 TO 51607 marked</p> <p>4 Harrington Exhibit 2 for</p> <p>5 identification.)</p> <p>6 -----</p> <p>7 BY MR. WOJTANOWICZ:</p> <p>8 Q. Okay. So yes, this has been</p> <p>9 introduced as Exhibit No. 2. And for the</p> <p>10 record, this is a document with the Bates</p> <p>11 numbers beginning GMCOUNTS851587 and continuing</p> <p>12 through 51607. Take a look a moment to look at</p> <p>13 this and see if you recognize the document as</p> <p>14 the one you just referred to?</p> <p>15 A. Okay.</p> <p>16 Q. Do you recognize it?</p> <p>17 A. Yes.</p> <p>18 Q. Okay. This is one of the documents</p> <p>19 you reviewed in connection with your report in</p> <p>20 this case, isn't it?</p> <p>21 A. Correct.</p> <p>22 Q. And if you turn to the slide number</p> <p>23 414 which is the Bates numbers ending 600, do</p> <p>24 you see that slide?</p> <p>25 A. Let me get to it. What was the</p>	<p style="text-align: right;">Page 269</p> <p>[REDACTED]</p>

68 (Pages 266 - 269)

HIGHLY CONFIDENTIAL

<p>Page 270</p> 	<p>Page 272</p> 
<p>Page 271</p> 	<p>Page 273</p> 

69 (Pages 270 - 273)